

# (12) United States Patent Linker et al.

(10) Patent No.:

US 6,331,507 B1

(45) Date of Patent:

Dec. 18, 2001

## SUBSTITUTED AROMATIC THIOCARBOXYLIC ACID AMIDES AND THEIR USE AS HERBICIDES

### (75) Inventors: Karl-Heinz Linker; Kurt Findeisen, both of Leverkusen; Roland Andree; Mark-Wilhelm Drewes, both of Langenfeld; Andreas Lender, Wuppertal; Otto Schallner, Monheim; Wilhelm Haas, Pulheim;

Hans-Joachim Santel; Markus Dollinger, both of Leverkusen, all of

Assignee: Bayer Aktiengesellschaft, Leverkusen (DE)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/470,583

(22) Filed: Dec. 22, 1999

### Related U.S. Application Data

Division of application No. 08/732,257, filed as application No. PCT/EP95/01507 on Apr. 21, 1995, now Pat. No. (62)6,077,813.

#### (30)Foreign Application Priority Data

	y 4, 1994 19, 1995	(DE)			
Jan.	19, 1995	(DE)	***************************************	195 00	439
(51)	Int. Cl. <sup>7</sup>		A01N 43/40	; C07D 21	1/34
(52)	U.S. Cl.		504/244; 504	/248; 504/	254;
	540	5/220; 546/221;	546/233; 54	6/296; 546	/300
(58)	Field of	Search		. 504/243,	249,
		504/273, 27	76, 281, 283,	244, 248,	254;
	;	544/312; 346/22	20; 548/262.4	1, 262.8, 26	53.2,
		302.7, 360.1, 5	47; 546/220,	221, 233,	296,
					300

#### (56)References Cited

### U.S. PATENT DOCUMENTS

3,338,913	8/1967	Yates et al	260/294.8
4,112,095 *	9/1978	Allen, Jr. et al	424/250
4,503,054 *	3/1985	Brown et al	. 514/242
4,515,791 *	5/1985	Allen, Jr. et al	514/248
4,734,415 *	3/1988	Sicar et al	. 514/247
5,006,148	4/1991	Fischer et al	71/72
5,124,342 *	6/1992	Kedersky et al	. 514/514

5,204,352	4/1993	Sundberg et al	514/258
5,639,770 *	6/1997	Chihiro et al	514/365
6,077,813 *	6/2000	Linker et al	504/272

#### FOREIGN PATENT DOCUMENTS

21 62 439		6/1973	(DE) .
22 04 767		8/1973	(DE).
0 052 442		5/1982	(EP).
0 370 332		5/1990	(EP).
0 384 362		8/1990	(EP).
0 537 980		4/1993	(EP).
0 542 363		5/1993	(EP).
1 080 246		8/1967	(GB).
1215858	*	12/1993	(GB).
02193994	+	7/1990	(JP).
WO 90/09381		8/1990	(WO).
WO 93/14077		7/1993	(WO).
WO 93/22303		11/1993	(WO) .
WO 93/24472	*	12/1993	(WO).

### OTHER PUBLICATIONS

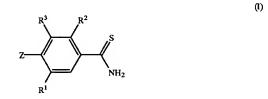
Sircar et al. (Cardiotonic Agents., J. Med. Chem., 30(11), pp. 1955-1962, (1987).\* CA 114:6530s (Abstract) 1991, p. 646. J.Hetero.Chem., vol. 25, No. 1, 1988, pp. 129-137, Sunberg et al., "Preparation of 2-aryl . . . compounds". J.Med.Chem., vol. 30, No. 6, 1987, pp. 1023-1029, Sircar et al., "Cardiotonic agents . . . inotropic activity". CA 103:71307m (Abstract) 1985, p. 652. CA 91:184919q (Abstract) 1979, pp. 646-647.

\* cited by examiner

Primary Examiner—Richard L. Raymond (74) Attorney, Agent, or Firm-Norris McLaughlin & Marcus

#### (57)**ABSTRACT**

There is disclosed substituted thiocarboxamides of the general formula (I)



useful as herbicides.

### 5 Claims, No Drawings